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CONSUMER POWER AND CONSERVATION
FINANCING AUTHORITY

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MEMORANDUM

TO: Board of Directors
California Power Authority

FROM: Staff

DATE: May 7, 2002

SUBJECT: ***Action Item 2C: CPA Board Policy Position for Distributed Generation***

Action Requested

Consideration to adopt both an overall policy framework and specific policy positions on distributed generation (DG).

Background:

For the April 12, 2002 Board meeting staff prepared a Board-requested informational report on Distributed Generation (DG) policy matters, State regulatory and strategy proceedings, CPA comments to a CEC strategy proceeding on DG, and various legislative proposals. The Board then asked for an expanded report on the status, CPA strategy, and possible CPA policy statement on DG, which was presented at the April 26, 2002 Board Meeting. At that time the Board requested staff to prepare more specific policy positions for the Board's consideration and also posed a number of questions.

Staff Recommends Approval

Answers to Questions posed by the Board:

Following are the Board's questions and the response information that Staff has identified:

1. **What is the expected size and timing of the State's power resource needs, so that we can support a pace for distributed generation that makes a positive resource contribution, without interfering with the energy under long-term DWR contracts?** (This question touches upon issues of "residual net short", "departing load", "exit fees", etc.)

   Staff contacted the CEC, CPUC, DWR, and DWR's consultant (Navigant) to seek guidance on this question. While disparate information was located, it is difficult to obtain a definitive answer to this question for the period 2002-06. California's energy resource outlook in the IOU service areas, understandably, is a moving target. Most of the reason for this is the variable power supply situation:

- DWR contracts are being renegotiated, DWR is gaining dispatch functions and greater control over the timing of power purchased, and some additional capacity is being secured for 2002 and 2003.

Additionally, most agencies view distributed generation as a reduction in the demand forecast (or "load"), and not as a power supply resource – the subject of most documents and proceedings now. Thus it is difficult to ascertain how much DG might be embedded in annual and long-term demand forecasts.

- There is a significant magnitude of Direct Access contracts that were signed between July – September 2001 (as much as 9-10% of the IOU service area load) that could have "exit fees" attached. (This issue is yet to be determined, and the subject of a CPUC proceeding.) Depending upon the size of exit fees attached, it is not certain if all of this contracted load will actually "exit" IOU service. (See April 12 Board Memo on DG, discussing the exit fee issue.)

Near-Term 2002-03

It is reasonable to assume that 200-300 MW of DG/year could be in demand forecasts, or otherwise expected to appear. This is in addition to the existing installed base of about 2000 MW of DG, and the additional 3000 MW of emergency back-up on-site generation.[1]

DWR seems to expect between 150-310 MW of DG to be available in 2002 and annually thereafter[2]:

- The 11/01 DWR forecast of Summer 2002 demand was lowered by an average of **312 MW** in consideration of distributed generation expected to be in place that summer.
- The new CPUC self-generation incentives introduced in 2001 are expected to produce **150 MW** of incremental self-generation per year through 2005 (based on $100 mil incentives/year)
- The DWR report is silent on the level of DG that might be induced by the CEC's incentives (for smaller DG systems, and for renewable sources -- e.g. PVs and small on-site wind generators).[3]
- The total self-generation installation forecast through 2002 is "**20 MW per month**" or "274 MW in 2002" (rounding errors assumed).
- The energy forecast show that DG will produce 1,561 GWh in 2002.[4]

[1] Existing DG data from CEC Draft Committee Report "*Distributed Generation Strategic Plan*", May 2002.
[2] "Determination of Revenue Requirements", Department of Water Resources, Submitted to the California Public Utilities Commission, November 5, 2001.
[3] A CEC presentation on DG at their February 5, 2002 workshop suggests they have $20 million in annual incentive funds for 4-5 MW per year of renewable small generation (e.g. PVs, renewable fuel cells). They have not been successful yet in deploying $2 million in incentive funds (equivalent to perhaps 1 MW) planned for microturbines, non-renewable fuel cells, and other DG technology; the barrier seems to be emissions and reliability requirements for receiving the incentives.
[4] Using the value above for an average summer DG contribution of 312 MW, this implies 5000 operating hours for typical systems, or a 57% load factor.

Information reported to the CEC on the status of customer applications to IOUs for DG interconnection reveals about 200 MW per year in recent applications, of which there were about 300 MW in the past 12 months:

- Through April 2002, the IOU utilities report applications for DG interconnection of a total of 426 MW [320 MW (SCE 2 years), 31 MW SDG&E past 19 months, and 75 MW PG&E past 12 months].

- This is in addition to the applications for small net energy metering installations (of < 10 kW and 10kW to 1 MW) amounting to a total of 11.2 MW [1.3 MW SCE, 5.2 MW SDG&E, and 4.7 MW PG&E].

Medium – Term 2003-2005

Preliminary analysis by the CEC (dated April 24, 2002, and subject to revision on/before May 15, 2002) looks at the DWR contracts and the projected hours that DWR will be short or long on power resources. The following table reflects CPA staff analysis of the CEC data and analysis. It appears that there is a minimum residual net short position of 2000 MW in 2003, climbing to as much as 5500 MW in 2005. This suggests there is ample opportunity to absorb the contributions of DG, especially in modest quantities of 200 MW of incremental resources per year.

CPA Assessment of Residual Net Short Opportunity

Derived from:

Working Draft: How RPS Might Interact with IOU Net Short Needs (CEC staff, April 24, 2002)

Year	Hours Short	Hours Long	GWh Short	Capacity Equivalent (MW)	
				For all hours Short	For 5000 hour resource*
2003	6,796	1,964	12,717	1,871	2,543
2004	6,776	1,984	18,493	2,729	3,699
2005	8,669	91	27,937	3,223	5,587

* (Using 5000 hours per year, equivalent to 08:00 - 24:00 6 days per week, consistent with the CEC's hourly analysis of residual net short in 2003)

Relevant IOU testimony in Procurement Proceeding R.091-10-024 at the CPUC

- SCE volunteers that it could absorb 200 MW per year of new renewable resources over a 10 year period (SCE Testimony, Volume 1, Executive Summary, May 1, 2002)

- SCE presents the CEC's "base-Case" and "Pessimistic Forecast" of Supply and Demand Conditions in California. The former shows reserve margins of 16.6 – 23.5% for 2002-2006, while the Pessimistic case shows reserve margins of 7.4- 12.9%. The latter clearly has "room" for additional resources. (SCE Testimony, Volume 3, Figures 2-3, May 1, 2002)

- PG&E testifies that 2003 procurement would be needed only on an hourly needs basis, and not in standard blocks of 6 days x 16 hours, or 7 days x 24 hours. PG&E believes that there will be "substantial needs for capacity and energy across the few, "super-peak" hours of the day." (PG&E Testimony of May 1, 2002, page 1-9) Later, PG&E states that they project " that there will be a residual net open [position] during peak periods". (See page 4-4) PG&E did not report any quantitative data in the public (redacted) version of its testimony, deferring specific quantity, duration, and timing information of each power resource need to the confidential documents filed at the CPUC. (See page 3-15) PG&E invites the CPUC to set a MW limit for renewables via long-term contracts. (See page 4-5)

The future pace of DG deployment also could be affected by the CPUC proceeding on Rate Stabilization (Applications 00-11-038, 00-11-056, and 00-10-028). These include issues of whether to allocate costs to (partial) "departing load" (e.g. from the addition of DG on customer premises).

2. Role of load serving entities (utility distribution companies) in supporting DG deployment.

Some Board members have indicated that it will be important to the ultimate success of DG technology adoption to address the possible role of load serving entities (LSEs) or utility distribution companies (UDCs) in facilitating, promoting, and/or owning DG. The CPUC opened an initial investigation (R.98-12-015) in 1998, followed by a subsequent DG rulemaking proceeding opened in October 1999 (see Board memo of April 12, 2002 for background).[5] There has been no definitive ruling on the role of the LSEs. However, Staff has heard that the record in the CPUC proceeding appeared to be positioned to conclude that UDCs should not participate in DG on the customer-side of the meter, where presumably there could be a conflict of role in serving the end use customer. Moreover, participation in the DG market by utility unregulated subsidiaries should abide by strict affiliate transaction rules established by the CPUC. It is also reported that although the utilities' position (in 2000) was that they do not plan to market DG to customers, nor do they want to be precluded from that option.

3. Use of "Third-Party" project delivery and financing (in addition to direct purchase of DG by host facilities and direct loans to those facility owners).

Third-party delivery and financing offers an ability to address technology risk, operational responsibilities, hedge project economics, and leverage all available tax credits and depreciation options that might not otherwise be useable or within reach of the host facility.

CPA staff met with the Department of Finance each of the past two weeks, and DOF offered to provide pointers, experience, and issues for attention from the General Fund's experience with considering third-party delivery and financing for energy projects at State facilities. DOF also encouraged the CPA to consult with the financial advisor to the Public Works Board to gain further insight into successful deployment of third-party arrangements.

[5] The CPUC proceeding so far has issued rulings on issues of stand-by charges, interconnection rules, and most recently the allocation of costs for studies and distribution system improvement costs associated with the DG interconnection.

Staff also met with the Department of General Services to learn more about the transferability of DGS' planned RFP for third-party delivery and financing of on-site generation at State DGS office buildings. This RFP will not include any efficiency, and will apply to a set of specific pre-screened DGS facilities. The model for the RFP, the documents, and assessment tools can be replicated on other pre-screened sets of like facilities, should this be the direction that the CPA takes in the future.

Recommendations:

I. <u>The CPA Board should adopt the following overall policy statement on Distributed Generation to serve as a guiding framework to staff and the public:</u>

Distributed clean technologies are integral components of the State's energy resource portfolio. The CPA's financial activities should encourage the manufacture, assembly, and installation of clean, distributed energy resource technologies in California to capture the extensive economic development and environmental benefits for the State and localities. These benefits include property taxes, sales taxes, employment, cleaner air, a reduction of energy costs, and their multiplier effects by keeping these expenditures and investments in the local economy. Participation in this industry is expected from needed from private sector DG manufacturers, distributors, service businesses, and host facilities (both public and private).

To achieve these benefits, the Power Authority calls upon the Governor's Office, State Legislature, and other State energy, environmental, and financial agencies to undertake and/or complete legislative, regulatory, and administrative initiatives to ensure a supportive framework for the successful deployment of distributed generation as part of California's diversified, clean energy future.

It is the Power Authority's policy to achieve an "even playing field" for distributed generation technologies alongside all other energy supply and demand management options with respect to:

- Treatment as a valued resource by utilities and their regulatory bodies
- Fair and non-discriminatory interconnection with the power grid
- Investment criteria and time horizons for the necessary private and public investment
- Environmental effects of energy resource decisions
- Investment tax policy and other investment incentives

II. <u>CPA Strategies</u>

The Power Authority will use three primary strategies to advance the use of DG:

- Build demand and competition to drive down technology price
- Offer attractive financing to expand market demand and match user economic costs to benefits
- Help secure z supportive policy and regulatory environment for DG investment

III. The CPA Board should adopt the following specific policy positions:

A. Energy Resource and System Benefits

Energy Resource

- Encourage the CEC and CPUC resource planning and power resource procurement activities to plan for the deployment of up to 200 MW of incremental DG each year through 2006 (a total of 1,000 MW).
- Encourage the CPUC to support rulemaking to allow clean DG to proceed up to this threshold without the imposition of departing load fees
- Advocate to the CPUC to eliminate or narrowly define what constitutes a "departing load" customer in cases of clean DG installation. Treat clean DG as equivalent to any load reduction that occurs through demand-side or time-of-use metering devices, the installation of efficiency measures, or energy conservation.

T&D System Effects

- It is important to determine the conditions under which DG is beneficial to the "power system" and bundled ratepayers. The CPA supports the CEC's intent to undertake an investigation and quantification of the transmission & distribution (T&D) benefits and/or costs from wide scale deployment of DG. The CPA encourages the CAISO to consider its grid management, metering, and other regulations and pricing methods as they might affect DG deployment.
- The findings of such an investigation (whether geographic or technical in nature) should be widely published to help the DG industry and end users to make good decisions about the most advantageous design or placement of DG systems in relation to the distribution system.
- The CPUC, CEC, and CPA should each apply their authorities to foster DG applications wherever these are beneficial to the power system and ratepayers.

Environmental Benefits

- The CPA should finance only clean DG that complies with CARB and other environmental guidelines regarding energy project emissions. This should include the consumption for energy purposes of free or waste fuel that might otherwise result in higher emissions than without the DG technology.
- The CPA should collaborate with CARB and local air or water quality management districts to promote the deployment and financing of DG in those geographic (e.g. non-attainment) areas seeking to reduce emissions, especially of particulates and NOx.

B. **Utility distribution company support** for DG deployment.

The CPA believes that:

- LSEs should be allowed to recover all reasonable costs for interconnection of DG that is "beneficial" to the power system and ratepayers.
- LSEs should be encouraged to invest in, own, and ratebase any beneficial DG located on the "utility side" of the meter.

- LSEs should receive some appropriate incentive or reward for successfully facilitating DG deployment at pre-determined target levels agreed upon by the CPUC (e.g. some pro-rata share of the recommended 200 MW annual incremental DG target).
- Utility non-regulated subsidiaries should be fully able to invest in, develop, or otherwise facilitate DG deployment on the "customer side" of the meter, as long as these activities are conducted through arms-length transactions that uphold CPUC regulations on affiliate transactions.

C. **Streamlined implementation** should be supported via:

- Convenient handling of needed siting permits (by local government agencies, as trained and assisted by the CEC or CARB)
- Fair & reasonable requirements and fees for interconnection, standby, or other grid-connection issues (as adopted by the CPUC and public power agencies)
- Re-authorization of existing legislation to support net metering for on-site small solar and wind generators up to 1 MW in size beyond the sunset of January 1, 2003. [E.g. via AB 58 (Keeley)]
- Assurances of safe and quality DG installation and operation via certified installers, trained local building inspectors, and equipment operators and maintenance technicians (trained and/or certified via recognized State or national certifications and training programs, likely sponsored by the industry, CEC, electrical unions, and building inspection trade groups)

D. **Commercialization model** to advance the pace and cost-effectiveness of DG in California.

- The executive directors of the CPA, CPUC, CEC, and CARB should collaborate to develop a consensus for vision, roles, and responsibilities among State agencies, UDCs, public power agencies, DG industry, and end users to accelerate the adoption of DG.
- Specifically, these agencies, in consultation with industry and other interested parties should craft a consensus on the balance of strategies to help with DG commercialization. This balance should address the proper roles for incentives, "buy downs", bulk procurement, public financing, and/or regulation as elements in a commercialization strategy.
- The CPA should identify and carry out appropriate business models for public financing of DG (balancing economics, maximum deployment, and economic development)
- CPA encourages the CEC to accelerate its time frames for R&D and analysis on DG technology performance and price reduction into a 1-2-year time frame rather than the 3-5 year time frame suggested by the CEC in its draft DG Strategic Plan.
- We encourage the CEC, in conjunction with industry, environmental agencies, and UDCs, to carry out R&D in support of DG technology commercialization. We encourage the CEC to shape its DG R&D activities to help
  - drive technology costs down,

- optimize emissions reductions,
- enhance performance efficiency, reliability, and safety, and
- support market development and growth

IV. The Board Encourages the Following Action Steps to Achieve the Desired Policies

A. Energy Resource Issues

- It would be helpful if the CPUC and CEC (using analysis by CDWR and CA ISO, and the testimony of the IOUs in the CPUC's Procurement proceeding) would jointly complete a definitive analysis of the State's power resource requirements, and net short profile for 2003-2006 by hours of the day, season, and year.
- Using this analysis, the CPUC and CEC could outline a preferred power resource portfolio that addresses the future contributions of renewable energy (existing and new projects); distributed generation, energy efficiency and demand-management alternatives, and conventional power supply resources.
- Consideration should include the potential impact on natural gas infrastructure from widespread deployment of gas-fueled DG, as opposed to renewable fuel DG.
- The CPA welcomes consideration of our Energy Resource Investment Plan as one example of a resource acquisition strategy.
- The CPA encourages the CEC and others to conclude in a shorter-term (e.g. the next 1-2 years, rather than 3-5 years) research, modeling, and testing to assess how wide-scale deployment of DG affects the electricity grid. This analysis should address:
  - How wide-scale deployment will affect reliability in localized areas,
  - What are reasonable costs for making improvements to T&D systems necessary to support DG deployment (to be further considered in the CPUC's DG proceeding, as appropriate),
  - What is a reasonable cost-sharing plan that will not hinder the successful deployment of DG or unfairly burden one customer class over another, and
  - How CARB air quality regulations help or hinder the deployment of clean DG.

B. UDC Support

- We encourage the CPUC to adopt via rulemaking a position on the role of UDCs (LSEs) in DG deployment.
- Both the CEC and the CPA should encourage public power agencies to adopt their own (similar or expanded) policies on this issue.

C. Streamlined Implementation

- We direct CPA staff to work with the State's financial control agencies (Department of Finance, Legislative Analyst's Office, Joint Legislative Budget Committee, and the

Public Works Board) to adopt a position similar to the following regarding economic risk and ensuring a "level playing field" for DG investment criteria:

"Any energy project, with its individual and/or bundled efficiency and renewable energy measures, should proceed if, after proper due diligence, has an expected lifecycle cost that is less than all other alternatives, including the option of "doing nothing".

- Support the continued development (by CEC, CPUC, and the DG industry) and implementation of standardized interconnection rules across California, including adoption by both IOUs and publicly owned utilities.
- Encourage CEC, utilities, and the DG industry to collaborate in developing tools to help quickly assess the value and impact of DG energy at any point on the grid
- Development of education and training programs by the CEC, DG industry, trade unions, and/or Employment Development Department on technical and safety issues surrounding permitting, installation, inspection, operation, and maintenance.

D. Commercialization

- The CPA encourages the CEC and CPUC to review their work plans and timetables so as to keep a high profile and greatest possible momentum on progress with analysis, rulemaking, and other proceedings to support the accelerated deployment of DG (and renewable) energy resources for California.
- The CPA invites interagency collaboration, at board and staff levels, to craft a single roadmap for collaborative action to support DG, in conjunction with utilities and the DG industry. A possible forum for this is to develop a multi-agency specific work plan in response to the CEC's Draft Distributed Generation Strategic Plan.
- We encourage the CEC to investigate the benefits and impacts of including DG in T-24 building performance standards.

Conclusion:

Staff recommends that the Board Members of the California Power Authority adopt the overall policy statement, CPA strategies, and specific policy positions outlined above to support the successful deployment of DG in California.